ADOPTION PATTERN OF RECOMMENDED MUSTARD PRODUCTION TECHNOLOGY IN BHARATPUR DISTRICT OF RAJASTHAN

R. C. Sachan[1], Ashok Kumar Sharma[2]

INTRODUCTION

India is the third largest rapeseed-mustard growing country in the world contributing 25.6 and 14.7 per cent, respectively, to world's hectarage and production. The oilseed production in the country can be sustained through productivity growth. All the research efforts to develop a technology are useless unless the technology is adopted by the farmers. The productivity can be increased with the increase of the level of adoption of recommended technology. The technology evolved for mustard crop is intended to get spread among mustard cultivators to accelerate production process. An important task in the development programme for agriculture is to crate awareness among the farmers about the improved agricultural practices. This is done by building up a sound agricultural information and extension education programme.

In order to ascertain the extent of adoption of recommended technology in mustard cultivation, the present study was conducted in Bharatpur district of Rajasthan. Mustard crop in the district covers 12.91 per cent of mustard area of the state.

METHODOLOGY

The present investigation was based on an intensive study of sample holding (mustard growers) in Bharatpur district of Rajasthan. District Bharatpur has been purposively selected for this study, looking to its typical and apt representation of the state with respect to mustard production. Bharatpur comes at first place on the basis of area and production of mustard crops in Rajasthan. The multistage stratified sampling was adopted with tehsil as primary unit, village as secondary unit and farm holdings the ultimate sampling unit. Out of 10 tehsils of Bharatpur district, three tehsils namely, Bharatpur, Roopwas and Kumher were selected randomly. Then from each selected tehsil, three villages were chosen randomly. The final selection of farmers was done from each selected village based on proportion to its size (number of mustard growers). The number of cases selected in tehsil Bharatpur came to 27, 13 and 10 in small, medium and large farmers, 24, 14 and 12 in small, medium and large farmers in Roopwas tehsil and 25, 14 and 11 in small, medium and large farmers in Kumher tehsil. Thus, in all 150 farmers consisted as sample of the present study.

The field data along with other required information pertaining to the selected respondents were collected with the help of pre-structured schedule by personal interview method.

RESULTS AND DISCUSSION

The collected information were analyzed for ascertaining the level of adoption of recommended technology in mustard cultivation

[1] Technical Officer, NRC on Rapeseed-Mustard, Sewar, Bharatpur-321303
[2] Scientist (Ag. Extension), NRC on Rapeseed-Mustard, Sewar, Bharatpur

Level of Adoption of recommended mustard production technology

The data presented in Table-1 reveal that overall 50 percent of the total respondents were found to be in the medium adoption group, where as 28 percent respondents were reported from the low adoption group and only 22 percent respondents could be placed in the high adoption group.

recommended varieties of mustard Varuna (T-59), Rohini and RH-30.

(3) Adoption of F.Y.M. and fertilizer use

As per recommendations, 80 kg nitrogen and 40 kg phosphorus per hectare should be applied in irrigated crop and half of recommended dose in un-irrigated situation. Only 30 per cent farmers followed the recommendation while 57.33 per cent

Table 1: The level of adoption of respondents about recommended technology in mustard cultivation

Sr. No.	Adoption level	Small farmers (76)		Medium farmers (41)		Large farmers (33)		Overall (150)	
		Farmers	Per cent	Farmers	Per cent	Farmers	Per cent	Farmers	Per cent
1.	Low (11-33 MPS)	20	26.31	11	26.82	11	33.33	42	28.00
2.	Medium (>33 - 55 MPS)	42	55.26	19	46.34	14	42.42	75	50.00
3.	High (> 55 MPS)	14	18.42	11	26.82	8	24.24	33	22.00

Extent of adoption of recommended technology in mustard cultivation

(1) Adoption of field preparation

Five or six ploughing for mustard is recommended. The information presented in the Table 1 reveals that only 14 per cent farmers ploughed their field as recommended while rest of majority (86per cent) of farmers over ploughed their land.

(2) Adoption of recommended varieties

The recommended improved varieties of mustard are Varuna (T-59), Rohini, PCR-7, BIO-902, and RH-30, Pusa bold. A perusal of the data in Table 2 on this particular aspect reveal that almost (98 per cent) all the farmers of different types have adopted

farmers were using fertilizer below recommended dose.

(4) Adoption of time of sowing

The recommended time of sowing is 20th September to 20th October for mustard crop. Analysis of Table 2 data expresses that 22 per cent of the farmers sowed their crop before time, 66 per cent in time, while rest 12 per cent have sown after time.

The main factor influence the decision of sowing as observed was the various expectations about the last rainfall by the farmers. This practice is followed in order to avail the benefit of residual soil moisture for germination of seed. Some farmers sowed their land after sowing time as they took mustard after taking bajra in kharif. Thus,

Table 2: Extent of adoption of recommended technology in mustard cultivation

Sr. No.	Extent of adoption	Small (76)		Medium (41)		Large (33)		Overall (150)	
		No. of Farmers	Per cent	No of Farmers	Per cent	No of Farmers	Per cent	No of Farmers	Per cent
1.	Preparatory tillage								
	i) As recommended	10	13.5	7	17.07	4	12.12	21	14
	ii) Above recommended	66	86.85	34	82.93	29	87.88	129	86
2.	Varieties								
	As recommended	75	98.68	39	95.12	33	100	147	98
3.	FYM and Chemical Fertilizer								
	i) As recommended	15	19.74	16	39.02	14	42.42	45	30
	ii) Below recommended	57	75	18	43.90	11	33.33	86	57.33
	iii) Above recommended	4	5.26	7	17.07	8	24.24	19	12.67
4.	Time of Sowing								
	i) Before recommended	19	25.00	8	19.51	6	18.18	33	22.0
	ii) In recommended time	47	61.84	28	68.29	24	72.72	99	66.00
	iii) After recommended	10	13.15	5	12.19	3	9.09	18	12.00
5.	Seed rate								
	i) As recommended	9	11.84	6	14.63	7	21.21	22	14.66
	ii) More than recommended	67	88.16	35	85.37	26	78.79	128	85.34
6.	Seed treatment								
	i) Treated	6	7.89	5	12.19	6	18.18	17	11.33
	ii) Un-treated	70	92.10	36	87.80	27	81.81	133	88.66
7.	Weeding								
	i) Manual								
	i) Nil	6	7.89	27	17.07	10	30.30	23	15.33
	ii) Below recommended	12	15.78	2	4.87	16	48.48	30	20.00
	iii) As recommended	58	76.31	32	78.04	02	6.06	82	61.33
	ii) Chemical	Nil		Nil		5	15.15	5	3.33
8.	Irrigation								
	i) Below recommended	27	35.5	12	29.3	8	24.2	47	31.33
	ii) As recommended	49	64.5	29	70.7	25	75.8	103	68.66
9.	Plant protection measures								
	i) As recommended	Nil	0	7	17.07	11	33.33	18	12.00
	ii) Below recommended	11	14.5	13	31.70	19	57.60	43	28.66
	iii) Nil	65	85.5	21	51.20	3	9.09	89	59.33

this delayed sowing was due to the time taken by the land preparation for mustard sowing.

(5) Adoption of seed rate

The recommended seed rate for mustard is 5 kg per ha. The data in Table 2 indicated that majority (85.33) of farmers of all the three types (small, medium and large) used seed rate more than recommended. It may be due to germination problem in the area, as in most of the cases crop is sown without pre-irrigation.

(6) Adoption of seed treatment

Seed is to be treated with thiram or captan, Dithane M-45 @ 2.5 - 3 gm per kg of seed. The analysis reveals that only 11.33 per cent farmers used seed treatment, while 88.66 per cent farmers did not used seed treatment.

(7) Adoption of weeding

One to two hand weeding in the crop are recommended. Alternatively, pre-emergence spray of Isoproturan 1 kg or Basallin 1 liter per hectare in 800-1000 liter of water is recommended. Data in Table 2 indicate that 61.33 per cent of the respondents followed recommended practice of hand weeding, while 20 per cent farmers used this practice below the recommended number and other 15.33 per cent did not do weeding. It was observed that majority of small and medium farmers followed recommended weeding as compared to large farmers.

It was worth noting that none of the mustard grower in case of small and medium farmers applied chemical weeding in the study area. Only 15.15 per cent of large farmers used chemical weeding.

(8) Adoption of irrigation

In irrigated conditions, two irrigations are recommended. The data on irrigation reveal that 68.66 per cent respondents followed recommended irrigation while 31.33 per cent do not follow.

(9) Adoption of plant protection measures

Mustard aphid, painted bug and mustard sawfly are main insects and pests while Alternaria blight, white rust and powdery mildew, Scelerotinia stem rot are the main pathogenic diseases of mustard crop. Apart from these insect and disease frost also proves a great havoc for this crop. The recommendation for control of mustard aphid is application of Metasystox 25 EC or Rogor 30 EC @ one liter or Dimacron 100 EC @ 250 ml per ha, diluted in 1000 liter water. The suggested control for mustard sawfly and painted bug is Malathion 50 EC or endosulphan 35 EC @ 500 ml per ha, diluted in 500 liter of water. Powdery mildew can be controlled by spraying of Dinocap 0.05 per cent and Alternaria blight and white rust can be controlled by spray with mancozeb @ 2 kg per ha. The crop can be safe spray with 0.1 per cent H_2SO_4 when cold day comes.

As regards plant protection measures the data revealed that only 28.66 per cent farmers followed plant protection measures below recommended, some medium and larger farmers followed recommended plant protection measures. Data further reveals that majority of farmers i.e. 59.33 per cent did not follow plant protection measures. The high cost and non-availability of effective fungicides, sprayer and duster might have important reason. None of the farmers used spray with H_2 So_4 in the study area. The lack of knowledge was the important region behind this.

CONCLUSION

In terms of adoption of various components of the package of practices, three categories (small, medium and large) of farmers were studied and it can be concluded that the adoption of improved variety has been almost uniform across the categories and is highest (98 per cent) amongst all the components of the technology. However, in terms of overall adoption of the technology package, medium categories farmers had a distinctive edge over the small categories. The scientific recommendations about time of sowing, manual weeding and irrigation were adopted by more than 60 per cent farmers of the study area while majority of farmers adopted preparatory tillage and seed rate more than recommendations. Most of the farmers were not using seed treatment and plant protection measures.

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